Case Study # 10
Pulmonary Embolism

Angela Mason
GSN 0606 Pharmacology
Clinical Correlation

Learning Objectives:

- Recognize the signs and symptoms as well as the risk factors predisposing a patient to a pulmonary embolus.
- Develop a plan to initiate and maintain a patient on intravenous heparin therapy using a weight-based heparin dosing nomogram.
- Determine the indications for thrombolytic therapy in pulmonary embolus.
- Develop a strategy to monitor the safety and efficacy of anticoagulation in inpatient and outpatient settings.
- Provide proper counseling to patients on warfarin therapy.

Chief Complaint

- "I have this persistent chest pain and problem with breathing over the last day or so."

HPI:

- C.L. is a 78 yo obese woman who is status post anterior wall MI four years ago. Her treatment included thrombolytic therapy at that time and angioplasty of LAD and left circumflex lesions two years ago. She now presents with left-sided chest pain and shortness of breath that started yesterday. The patient states that the chest pain was initially acute, sharp, and intermittent but has now become persistent.

HPI Cont.

- The pain is markedly worse on any type of movement and is pleuritic in nature (as it increases on inspiration and on direct palpation). The patient also states that this pain is quite different from her typical anginal pain that she experienced before her previous angioplasty. The pain started at rest and is associated with shortness of breath, but she has no nausea, vomiting, diaphoresis, or pain radiation.

PMH:

- CAD, S/P anterior wall MI 4 years ago and PTCA of LAD and left circumflex lesions 2 years ago; EF 47%
- RA for more than 30 years
- PUD diagnosed 5 years ago; currently asymptomatic
- S/P total hysterectomy in 1970s
- Osteoporosis

- FH: Mother died of heart failure at the age of 92; father died after multiple strokes at age 57. Her brother is alive and has had an MI and a three-vessel CABG.
- SH: Patient has an 80 pack-year tobacco history. She quit 22 years ago.

MEDS:

- Cardizem CD 180 mg po QD
- Propranolol LA 60mg po QD
- Furosemide 40mg po QAM
- Prednisone 5 mg po QAM
- Premarin 0.625 mg po QD
- Aspirin (enteric-coated) 1 tablet po QD
- Slow-K 2 tablets po QD
- Isosorbide dinitrate 10 mg po Q 6H TID
- Calcium carbonate 500 mg po TID

- Allergy: NKDA
- ROS: Chest Pain and shortness of breath, as described above

PE:

- VS: BP 136/70, P 90, RR 22, T 37.0 C; Ht 160 cm, Wt 8o kg
- Lungs: Marked rales at bases, left greater than right. There are some wheezes and decreased breath sounds at the bases. There is some dullness to percussion bilaterally, which is also greater on the left.
- Ext: Degenerative changes of RA in both hands and feet; no calf tenderness

PE Cont:

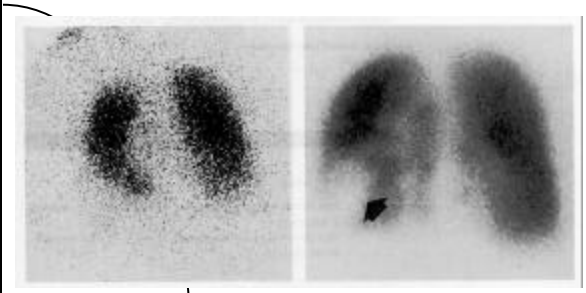
- Labs: Sodium 138 mEq/L, potassium 3.8 mEq/L, chloride 99 mEq/L, CO2 content 27 mEq/L, BUN 17 mg/dL, serum creatine 1.2 mg/dL, glucose 109 mg/dL
- Hemoglobin 13 g/dL, hematocrit 35%, platelets 269,000/mm3, aPTT 27.8 seconds
- ABG on 2 L of oxygen: ph 7.47, Pco2 40, Po2 81, bicarbonate 29, and oxygen saturation 95%

PE Cont:

- Serial CPKs were normal.
- ECG: NSR. There were Q waves in leads III and f, which are old, and a small inverted T-wave in V1 to V2 with some flattening laterally.
- CXR: Shows a very poor inspiratory effort, bilateral pleural effusions with the left much greater than the right. Also shows some prominent pulmonary vasculature.

PE Cont:

- Ventilation/Perfusion (V/Q) Scan: Perfusion abnormality in the left base. There is a marked discrepancy between the perfusion defect and ventilation of the left lung, indicating an intermediate probability for pulmonary embolus (See next slide).
- Most useful procedure in screening of patients for PE (White, P. & Georas, S., 1999).



PE cont:

- Left Pulmonary Angiogram: Consistent with pulmonary emboli in the left lower lobe pulmonary arteries (see next slide).
- Pulmonary arteriogram is the golden standard for diagnosing PE (Erdman, S. et al 1998; Church,V.,2000).
- Doppler studies of Lower Extremities : Unremarkable